Bruhath Bengaluru Mahanagara Palike

QUALITY ASSURANCE/QUALITY CONTROL REPORT

Office of the Chief Engineer (Quality Assurance/Control) Annexure-05,
BBMP Head Office, Hudson circle Bengalore-001,
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QUALITY ASSURANCE REPORT/QUALITY CONTROL REPORT

AEE/QA/PR/ 71 /2022-23, DATE: 30/5/23		
Name of Work	:	Improvements of Roads Drains and Culverts in ward no 10 (Doddabommasandra) Estimated cost 100.00 Lakhs
Job Code	:	010-21-000005
Bill No.	:	**1st & Final Bill. 1,04,88,501.00(including GST)**
Name of Agency	:	**Sri. N.M.Shivkumar**
Type of Test Performed	:	Bitumen Content and Gradation test as per Table 500.17 MORTH V Revision.
Materials on which Tests Was Performed	:	1. Bituminous Concrete (Grade II)
Officers present during inspection	:	1.Sri. Praveen AE – ward No 10 2.Sri. Kiran.B. EE-Quality Assurance 3.Sri. C. Shridhar. AEE-Quality Assurance
Project Management Consultants/Third Party	:	Rudrprasad Consultants
Observations	:	➢ Bitumen Content and Gradation Test was conducted by Project Management Consultants at random locations in presence of AE (AE – ward No 10) along with AEE of QA division & EE of QA division . ➢ The Bitumen content & Gradation Test were conducted for BC (Grade-II). The readings and results are recorded by the PMC consultants. ➢ The Bitumen Content & Gradation Test results are tabulated and analysis of test results done by PMC is here by furnished. ➢ The location wise test results are reproduced in the tables shown below.
Test Locations	:	Location 1: BEL Colony- E stamp office road.(infront of Mazdoor Sangh, Near society gate, Infront of herbal garden) Location 2: BEL Factory main road, Nagaland Colony (WO356). (Infront of H.No. NA 450, Infront of H.No. NA 464, Infront of H.No. NA 453)

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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಗುಣಭರವಸೆ/ಗುಣನಿಯಂತ್ರಣ ಉಪ-ವಿಭಾಗ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ

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Table-01 : Bitumen Content and gradation Test Results in BEL Colony- E stamp office road at random locations BC-BC(GRADE-II)

Description	Trial 1	Trail 2	Trail 3
1.Initial weight of sample (gms) w1	398	465	329
2. final weight of sample after extraction (gms) w2	378.5	441.5	313
3. Initial weight of filter paper (gms) w3	4	4	4
4. Final weight of filter paper (gms) w4	6	6	6
5. Increased weight of filter paper (gms) w5=(w4-w3)	2	2	2
6. Weight of Bitumen Extracted (gms). w6=w1-w2+w5	21.5	25.5	18
7. Bitumen content in % (w6/w1)x100	5.40	5.48	5.47
8.Average	5.45		

SIEVE SIZE mm	Trail 1				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cumulative Weight Retained	%Cumulative Retained	% Passing	
19.00	0	0	0.0	100.0	100
13.2	0	0	0.0	100.0	90-100
9.5	52	52	13.7	86.3	70-88
4.75	95	147	38.8	61.2	53-71
2.36	65	212	56.0	44.0	42-58
1.18	29	241	63.7	36.3	34-48
0.6	11	252	66.6	33.4	26-38
0.3	46	298	78.7	21.3	18-28
0.15	30	328	86.7	13.3	12-20
0.075	20	348	91.9	8.1	4-10

SIEVE SIZE mm	Trail 2				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cumulative Weight Retained	%Cumulative Retained	% Passing	
19.00	0	0	0.0	100.0	100
13.2	4	4	0.9	99.1	90-100
9.5	62	66	14.9	85.1	70-88
4.75	96	162	36.7	63.3	53-71
2.36	88	250	56.6	43.4	42-58
1.18	29	279	63.2	36.8	34-48
0.6	11	290	65.7	34.3	26-38
0.3	46	336	76.1	23.9	18-28
0.15	45	381	86.3	13.7	12-20
0.075	35	416	94.2	5.8	4-10

SIEVE SIZE mm	Trail 3				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cumulative Weight Retained	%Cumulative Retained	% Passing	
19.00	0	0	0.0	100.0	100
13.2	4	4	1.3	98.7	90-100
9.5	35	39	12.5	87.5	70-88
4.75	80	119	38.0	62.0	53-71
2.36	30	149	47.6	52.4	42-58
1.18	29	178	56.9	43.1	34-48
0.6	20	198	63.3	36.7	26-38
0.3	46	244	78.0	22.0	18-28
0.15	28	272	86.9	13.1	12-20
0.075	25	297	94.9	5.1	4-10

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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಗುಣನಿಯಂತ್ರಣ ಉಪ-ವಿಭಾಗ
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ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
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Table-02: Bitumen Content and gradation Test Results in BEL Factory main road, Nagaland Colony (WO356)at random locations BC-(GRADE-II)

Description	Trial 1	Trail 2	Trail 3
1.Initial weight of sample (gms) w1	326	486	582
2. final weight of sample after extraction (gms) w2	310	461.5	552
3. Initial weight of filter paper (gms) w3	4	4	4
4. Final weight of filter paper (gms) w4	6	6	6
5. Increased weight of filter paper (gms) w5=(w4-w3)	2	2	2
6. Weight of Bitumen Extracted (gms). w6=w1-w2+w5	18	26.5	32
7. Bitumen content in % (w6/w1)x100	5.52	5.45	5.50
8.Average	5.49		

SIEVE SIZE mm	Trail 1				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cumulative Weight Retained	%Cumulative Retained	% Passing	
19.00	0	0	0.0	100.0	100
13.2	4	4	1.3	98.7	90-100
9.5	52	56	18.1	81.9	70-88
4.75	85	141	45.5	54.5	53-71
2.36	35	176	56.8	43.2	42-58
1.18	25	201	64.8	35.2	34-48
0.6	11	212	68.4	31.6	26-38
0.3	35	247	79.7	20.3	18-28
0.15	22	269	86.8	13.2	12-20
0.075	12	281	90.6	9.4	4-10

SIEVE SIZE mm	Trail 2				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cumulative Weight Retained	%Cumulative Retained	% Passing	
19.00	0	0	0.0	100.0	100
13.2	4	4	0.9	99.1	90-100
9.5	62	66	14.3	85.7	70-88
4.75	112	178	38.6	61.4	53-71
2.36	88	266	57.6	42.4	42-58
1.18	29	295	63.9	36.1	34-48
0.6	11	306	66.3	33.7	26-38
0.3	46	352	76.3	23.7	18-28
0.15	45	397	86.0	14.0	12-20
0.075	41	438	94.9	5.1	4-10

SIEVE SIZE mm	Trail 3				Requirement as per MORTH table 500.17
	Weight Retained, gm	Cumulative Weight Retained	%Cumulative Retained	% Passing	
19.00	0	0	0.0	100.0	100
13.2	4	4	0.7	99.3	90-100
9.5	65	69	12.5	87.5	70-88
4.75	112	181	32.8	67.2	53-71
2.36	88	269	48.7	51.3	42-58
1.18	29	298	54.0	46.0	34-48
0.6	45	343	62.1	37.9	26-38
0.3	60	403	73.0	27.0	18-28
0.15	45	448	81.2	18.8	12-20
0.075	55	503	91.1	8.9	4-10

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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
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Conclusion:

The file containing **1st & Final** bill has been submitted for the above work to QA department on **27.04.2023** requesting for spot inspection. Engineers of QA/QC division have visited the work spot on 19.05.2023

It was instructed to assess the Gradation & Bitumen content test for BC (Grade-II) on Asphalted road . The Bitumen Content and Gradation Tests were conducted by Third party Consultant in presence of engineer in charge of work.

From the test results furnished by Third party Consultant, it is concluded that the results of the samples collected are in accordance with the standards/ specifications mention in the IRC codes. However, the results submitted by the Third party Consultant have been reproduced here with for further needful action. The results checked by QA/QC relates only for item tested in the particular location randomly.

Engineer in charge of work shall ensure that work executed as per this bill is not claimed in any other bill /work or else Engineer in charge of work shall be held responsible.

Further, QA/QC directs the Engineer in-charge of the work that all materials used for the work shall be inspected, tested and accepted as per the relevant specifications before incorporation in the work. The frequencies and methods of sampling and testing materials, including those required for definite purpose and not covered by MORT&H specifications shall be in accordance to the relevant IRC or BIS or AASHTO/ASTM/BS standards in order of priority.

All materials or work not conforming to the requirements of the specifications shall be considered unacceptable and rejected. The unacceptable materials or works that are rejected shall be immediately removed unless the defects are corrected and approved by the engineer in-charge of work.

The concerned Engineer in charge of the work shall follow the direction issued by Chief Commissioner Letter number dated 01.08.2022 and 14.09.2022 and take necessary action as appropriate in accordance with the law.

Note: -

This report by QA/QC is pertaining to the work carried out in **1st & Final bill** only. Therefore, further QA/QC reports shall be obtained for the items of work carried out in future Running Account bill / Final bill.

Safety precautions shall be taken at work spot to prevent any mishap, injuries or loss of life to general public and construction workers according to guidelines laid down in code of practices.

Engineer in charge of work shall display details of work, work code, cost of project, start and completion date, and information of Engineer in charge of work with contact numbers at work spot.

Engineer in charge of work and Agency shall ensure that if any damages or defects occur pertaining to the executed work within the Defect Liability period (DLP), The same shall be rectified immediately on top priority without fail.

Engineer in charge of work shall ensure that any changes/ modification in the sanctioned estimate to be got approved by competent authority.

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Location 1: BEL Colony- E stamp office road. (Infront of Mazdoor Sangh, Near society gate, Infront of herbal garden)

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Location 2: BEL Factory main road, Nagaland Colony (WO356). (Infront of H.No. NA 450, Infront of H.No. NA 464, Infront of H.No. NA 453)

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